

Thanks for downloading *Stem cell treatments and ethics*.

Use this lesson with 12-14 year olds to develop discussion skills and consider possible ethical or societal dilemmas about the use of new stem cell treatments.

dilemma think
question decision
talk discuss

Overview

A 1-hour discussion lesson for 12-14 year olds on ethical or societal dilemmas about the use of new stem cell treatments. Who should be allowed life-changing new treatments? When should patients be given experimental treatments? How do we weigh up the risks and benefits? And who decides?

This easy-to-deliver lesson builds students' discussions skills and confidence, starting with simple everyday situations and building towards more complex situations involving stem cell treatments. A short, simple PowerPoint presentation acts as a guide for the facilitator and contains detailed supporting notes. ***Stem cell treatments and ethics*** is part of a three-lesson set, also containing:

- 1) ***Discover stem cells*** – an introductory lesson on stem cells and their role in the body.
- 2) ***CSI: cell science investigators*** – a practical lesson on the processes and applications of stem cell science.

All three lessons provide flexible resources that can readily be adapted to suit your own needs and can be used by scientists visiting schools, or by teachers themselves. Let us know how you have used the material by posting your comments at <http://www.eurostemcell.org/toolkititem/stem-cell-treatments-and-ethics> and returning the feedback forms supplied with this lesson.

Learning objectives

- Know some of the societal or ethical considerations relating to new stem cell therapies
- Consider the possible views of different people about new therapies
- Be able to express opinions about when a new therapy should be given to/used by patients and why
- Develop discussion and scientific literacy skills, including:
 - assessing risk and benefit of science applications
 - making informed personal decisions and choices
 - expressing opinions and showing respect for others' views
 - developing informed social, moral and ethical views of scientific issues
 - being able to read and understand essential points from sources of information

Required prior knowledge

No prior knowledge of stem cell biology is required for this lesson, though an understanding of what stem cells are is useful. We recommend using the lesson in combination with **Discover stem cells** and **CSI: Cell science investigators**, available at <http://www.eurostemcell.org/stem-cell-toolkit>.

Materials and preparation

Before the lesson

- Print sufficient materials for the class and collate into packs per group of four or five students.
- Read the guidance notes accompanying the PowerPoint slides and in this guide.
- Read the **Scenarios** and the **Discussion prompts for facilitators** at the end of this guide. Consider how you might support students to develop their own opinions and extend discussion beyond the information on the **Scenario** and **Issue cards**.

Classroom equipment and presentation

- Computer with PowerPoint
- Projector and screen
- Desks arranged for working in small groups of approx 4–6 students
- **Stem cells and ethics** PowerPoint slides. Note that experienced facilitators may not need the PowerPoint slides to deliver this lesson.

Materials per group of 4–6 students

- Warm-up: 5 **Dilemmas and decisions cards**
- Scenarios:
 - 2 x double-sided **Scenario sheets**: one on Monika, one on Peter (ideally A3)
 - 8 **Opinion cards**: four for Monika, four for Peter
- Pens

Feedback

- **Stem cells and ethics** feedback forms: teacher and student versions

Lesson structure and timings

See the **Stem cell treatments and ethics** PowerPoint for detailed guidance notes on delivery of each lesson activity.

Activity	Time needed	From...to... (insert times, e.g 9-9:05am)
Start: Students arrive and settle down.	5 mins	
Introduction and warm-up activity (slides 1–3) Introduce yourself, the aims of the lesson and what it will involve. Use the Dilemmas and decisions cards as a warm-up activity to get students thinking and discussion. Focus on the skills needed to have an effective discussion.	10 mins	
Scenario 1: Monika and her liver (slide 4) A relatively simple scenario for students to discuss in groups. Introduces the concept of rights and responsibilities by raising questions about who should have access to new therapies. The Opinion cards provide students with prompts for discussion.	10 mins	
Scenario 2: Peter and his treatment (slide 5) A more complex scenario introducing ideas about risk, benefits, evidence, rights and responsibilities. Students discuss what we might need to consider to decide when it is appropriate to use a new therapy on patients. Builds from individual opinions towards a group consensus.	15 mins	
Plenary (slide 6) Groups share their decision on Peter’s situation and their reasons. Facilitator-led class discussion to develop a summary list of things to be considered if deciding whether a therapy should be given to patients.	10 mins	
Wrap-up and feedback (slide 7) Summarise key messages. Students and teacher complete feedback forms.	5 mins	
Total time:		55 mins

Discussion and extension prompts

Below are some ideas for facilitators for developing the discussion, particularly for extending the debate for more able students or a longer session. In a one-hour lesson, we kept discussion of Monika's scenario simple to leave plenty of time for developing concepts further in Peter's scenario.

Monika and her liver

- Is there anything Monika could do that would change your opinion?
- What if Monika were an alcoholic who needed help to stop drinking?
- What about other illnesses or things we do that affect our health? Should what we eat, whether we smoke, how dangerously we drive or other things we do affect what treatments we can get? Who should decide that?
- What if Monika's parents couldn't pay for the treatment but she could have it paid for by a charity, the National Health Service (UK) or another organisation?

Peter and his treatment

- Is anyone else's opinion important (apart from Peter and his doctor)?
- Is there anything you want to know in addition to what is on the **Scenario sheet** to help you make up your mind about advising Peter?
- Does it make any difference who is offering the treatment? Do you need to know anything about the clinic/doctor? Is information from the clinic itself sufficient?
- What do you know about the treatment? What might you need to know? Examples: How has the treatment been tested? What are the possible risks? What are the expected benefits and how does this compare to other treatment options? What does the treatment involve? How painful is it, how long does it take etc? What happens if something goes wrong? Is there a plan for care if this happens?
- What about other treatments Peter might use? If there were treatments that could make him feel better but not cure him, would that change your advice?
- Would it change your opinion if Peter's symptoms were different? Does it matter how serious his disease is?
- Would it affect your opinion if the treatment were very expensive and Peter couldn't pay for it?

Extension: Other possible discussion topics

- Who will have access to future stem cell treatments? Will this be affected by cost, where you live, religious or moral views in your country, family or community?
- Cost versus benefit: compare situations where (a) a new treatment for a rare fatal disease will only benefit a very small number of people but the benefit to them is very great (life-saving), and (b) a new treatment for a very common chronic and painful disease will help a large number of people by increasing their quality of life somewhat. What other possible combinations can you think of? How would you prioritise the issues if you had a limited amount of money and could make only some treatments available?

Additional or homework activities

1. Create a situation with an ethical dilemma for other students to discuss next lesson.
2. What diseases can be treated using stem cells today? Research this topic and prepare an information leaflet for patients containing advice on what treatments are available now, and what they should think about before accepting an experimental new treatment. Sources for teachers:
 - www.eurostemcell.org and particularly <http://www.eurostemcell.org/stem-cell-faq/english/clinical-trials-stem-cell-treatments>
 - <http://www.closerlookatstemcells.org/>

Acknowledgements and licensing

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John's maths test

John got 3 out of 10 answers right on his maths test. His teacher says he has to study more and do the test again. But John says he already knows how to do the questions, he just got nervous. Should the teacher believe John and let him pass the test? Why or why not?

Sai and her skateboard

Sai loves skateboarding. She is at the park watching some older kids doing tricks on their boards. One of them asks Sai to join in and try a really difficult jump. She's never done it before and if it goes wrong, she thinks she could really hurt herself. Should she try it?

Callum's new phone

Callum has a brand new phone with a great camera. His friend Tom wants to borrow it to take to a music festival because he's broken his own phone. Callum knows Tom is sneaking off to the festival even though his parents said he can't go. Should Callum lend Tom his phone? Why or why not?

Sarah and Jenny on their way home

Sarah and Jenny have been to the cinema. Sarah promised her mum she would be home by 11pm. To get there in time she has to catch the bus. She's got just enough money left for a ticket and she knows her mum will worry if she's late. Jenny hasn't got any money for the bus and is afraid to walk home on her own. Should Sarah catch the bus or walk home with Jenny?

George in trouble

George told the teacher that Vicky had cheated on a test and got her into trouble. The next weekend, Vicky sees George in town and a gang of boys is threatening to beat him up. Should Vicky run to get help or just leave George to look after himself?

Monika and her liver

Now I've left school I've got my own money so I go out most nights. I drink loads on Fridays and Saturdays when I'm clubbing with my mates – it's great fun! My liver will probably be wrecked soon, but it's ok because my mum and dad can pay for me to get a new one made from my stem cells. Then I'm just going to keep on drinking!



Monika and her liver: opinions

Agree



Disagree

Peter and his treatment

I've got a disease called multiple sclerosis. I have trouble walking and sometimes I get blurred vision. I'm really tired a lot of the time and it's getting worse. My doctor has helped as much as he can, but no-one here can cure me. I've read about a new stem cell treatment I could get abroad. It's expensive but I think it's worth it. My doctor is worried there isn't enough proof the treatment is safe, but I'm willing to take the risk. I just want to get better so I am going to have the treatment.



Peter and his treatment: Vote and group decision

Do you think Peter should get the treatment?

Name:

Name:

Name:

Name:

Name:

Name:

I've got a disease called multiple sclerosis. I have trouble walking and sometimes I get blurred vision. I'm really tired a lot of the time and it's getting worse. My doctor has helped as much as he can, but no-one here can cure me. I've read about a new stem cell treatment I could get abroad. It's expensive but I think it's worth it. My doctor is worried there isn't enough proof the treatment is safe, but I'm willing to take the risk. I just want to get better so I am going to have the treatment.

We think Peter should _____

because:

-
-

Johan

We all make mistakes – that’s how we learn. Medical treatments like this can give us a second chance. That’s a good thing!

www.eurostemcell.org



Christian

Science is there to make our lives better. It’s great that Monika can get a new liver so she can be free to do what she wants.

www.eurostemcell.org



Carla

It’s Monika’s own fault her liver is getting damaged. She shouldn’t be able to just get treated and then keep drinking. She’s causing problems for her family and wasting her doctor’s time.

www.eurostemcell.org



Hannah

Monika should watch out. All that drinking will damage her heart and her memory too. Soon she’ll need more than a new liver.

www.eurostemcell.org



Maria

There must be a reason why the treatment isn't available here. If Peter's doctor is worried, he should listen to him.



www.eurostemcell.org

Stefan

Peter has the right to decide what he wants to do. Only Peter knows how bad he feels. If he wants to try the treatment, no-one should stop him.



www.eurostemcell.org

Ben

I think Peter could still have a good life so it's not worth taking any risks. If he had a different disease and needed something to save his life, it would be worth trying out a new treatment even without proof it would work.



www.eurostemcell.org

Natalia

It must be awful to have a disease and know there is no cure. But the treatment might make Peter much worse. He wants to get better so much that he needs help to make the right decision.



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Feedback form: Students

12–14

1. Did you enjoy the lesson?

I enjoyed it a lot

I enjoyed most bits of it

I did not like some of it

I did not like any of it

2. Which part(s) of the lesson did you LIKE? Why?

3. Which part(s) of the lesson did you DISLIKE? Why?

4. How much did you learn in the lesson?

I learned a lot of new things

I learned quite a few new things

I did not learn much

I did not learn anything

5. Try to write down 2 things you learnt during the lesson.

6. What should we change to make the lesson more interesting?

Thank you for your help. We hope you enjoyed the lesson.

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Feedback form: Teachers

12–14

1. Which class(es) did you observe?

2. How would you describe the level of engagement of the students in comparison to their usual engagement level in lessons?

- Majority of students more engaged than usual
- A few students more engaged than usual
- Students all at their usual engagement level
- A few students less engaged than usual
- Majority of students less engaged than usual

3. Was the content pitched appropriately for the age and ability of the students?

If some parts of the lesson were more appropriate than others, please explain which parts were problematic and why.

4. Was the type of activity appropriate? If not, what should be changed?

5. Was the content well matched to curriculum goals? If not, what should be changed?

Please turn over

Stem cell treatments and ethics

Feedback form: Teachers

12–14

6. Would you consider repeating the visit, or suggesting to colleagues that they organise a similar event? Why/Why not?

7. Any other comments or suggestions for improvement of today's activities?

8. We want to make some downloadable educational resources on stem cells and regenerative medicine. Would you use today's resources yourself or what would you prefer instead?

9. Do you look for teaching resources online, and if so, are there any particular sites or resources that you like? (on any topic, not only stem cells)

Thank you for your time. Your comments will help us develop our activities and provide guidance for other scientists who wish to visit schools.